

FOCUS on South Plains Agriculture

Texas AgriLife Research and Extension Center at Lubbock
1102 E. FM 1294, Lubbock, Texas 79403

Cotton Insects

Worms

Spider mites

Corn and Sorghum Insects

Bt corn damage from worms; an issue?

Sorghum midge and headworms

Wheat Agronomy

Variety recommendations for grain

Herbicide recommendations

Cotton Insects

Worms

Bollworms are continuing to hit non-Bt fields. We are seeing a lot of fields with chronic infestations, but some acute infestations as well. Worm survival has been low in fields where a large portion of the eggs are being deposited in the top of the plant. This is undoubtedly primarily due to predation. Most of these fields tend to be those that still have a fairly lush terminal and plenty of squares. In fields that have cutout hard we are seeing most of the eggs laid inside the plant canopy on bracts and secondary blooms. Many of these worms are making their way to small and medium sized bolls and immediately burrowing in, or feeding under bloom tags. Getting at these worms is especially difficult.

To make matters worse, there are indications from Dr. Pietrantonio at Texas A&M that we may be dealing with some low levels of pyrethroid resistance. This doesn't mean that a pyrethroid won't kill them, it means that higher rates and better coverage may be necessary to do the job, and with mid-canopy egg lays in robust cotton, this can be a problem.

To top all of this off, we are also picking up more and more armyworms; beet armyworms, yellow striped armyworms and fall armyworms. Pyrethroids are not going to do much to any of these species. For beets and yellows, we have seen extremely good activity out of Intrepid, Coragen, Belt, Denim, Diamond and Steward. For fall armyworms I suggest Coragen, Belt or Diamond; I do not have, nor have I seen, enough data to recommend Denim or Steward for fall armyworms.

Now for the real problem; it's rarely a case of just armyworms. In almost all cases there are bollworms as well, but the products

that work on armyworms are comparatively less effective on bollworms. However, our data suggest that Belt, Coragen and Steward all have some decent activity on bollworms (no data on Demin). All of these products need to be ingested to for maximum activity, so getting a cryptic feeder like a bollworm to pick them up may be difficult, and Steward should only be directed towards small bollworms. [Click here to view product efficacy results for bollworms, link to bollworm test.](#)

Here is my suggestion: If you have a large population of bollworms and a treatable population of armyworms, use a pyrethroid and mix it with an appropriate armyworm material. If you have a treatable population of armyworms and a small but concerning population of bollworms, use something like Belt, Coragen, or Steward if they are small. These should have enough bollworm activity to deal with a smaller population. We do have tests out on many of these products so hopefully we will learn more over the next weeks.

Remember the treatment threshold for bollworms <1/4 inch long is 10,000 worms per acre and 5,000 large worms per acre. Also remember that an armyworm, especially beet and yellow striped armyworms, are not equal to a bollworm in terms of the damage they do. Armyworms tend to do a lot more foliar feeding than bollworms (beets and yellows more so than falls) and less fruit feeding. Thus the thresholds for these armyworm species are higher. The threshold for beet and yellow striped armyworms is 20,000 worms per acre, and for fall armyworms it's 10,000-20,000 per acre, depending on damage. If you are picking up significant fruit feeding, 5-10% damaged fruit, then treating at a lower threshold than what's written above is likely justified.

Know Your Worms

Because the species composition is going to influence your insecticide selection, it is vital to know what you have. The [linked page contains detailed photos](#) of these caterpillars. Ed Bynum, Extension Entomology Specialist in Amarillo, has created an excellent "[Cotton Worms ID Guide](#)" that uses photographs to

show key characteristics of the worms we have mentioned here. (If you download the PDF and open it in Acrobat Reader then you can blow it up to a large size.)

Mites

Moderate to high populations of spider mites are continuing to increase in some fields, particularly in Lubbock Co, but light populations are beginning to pop up in other counties as well. Currently I am recommending treating for mites when you have 50% of your plants with noticeable reddening. What this means is that as you walk through the field and glance at a plant and if you notice reddening, then that is a hit, if not it's a miss, 50% hits and treat.



Typical mite hit with noticeable reddening

We have several mite tests out which were treated at about that 50% hit level. Our data thus far suggest that Oberon at 4 or 8 fl-oz and Epi-Mek at 8 fl-oz are good treatments. Portal at 1 pint looks okay but it is a little early to tell for sure. We also have Brigade in this test. Brigade is a pyrethroid with checkered mite activity. It gives inconsistent or short-lived results. However, in our test when Brigade was used before the mite population got too bad, it appears to be providing acceptable control.

However, I do not have enough data to fully endorse using this product at this time. DLK

Corn and Sorghum Insects

Corn Insects

I have received some calls from people growing Bt corn that is taking noticeable ear damage from fall armyworm and corn earworm (cotton bollworm). The question being asked is whether we could have resistance developing to the Bt toxins. My first response is that it is very, very unlikely; about as likely as our politicians in DC putting aside their differences, singing Kumbayah after a group hug and then balancing the budget. What is probably happening is that, as compared to their ability to control stalk borers, neither YieldGard or Herculex is all that good on corn earworm or fall armyworm. These first generation Bts were built to kill stalk borers primarily, like south-western corn borer and European corn borer. They do have some efficacy on fall armyworm and corn earworm (Herculex a bit more than YieldGard for fall armyworm), but there are plenty of larvae that survive on first generation Bt plants. The good news is that fall armyworm, the most damaging of the two species, behaves much like a corn earworm when on this first generation, single toxin Bt corn; it becomes an ear tip feeder and does not drill through the sides of Bt corn ears or damage shanks. But it can live in the ear tip; it grows slowly and may eventually die.

We have had very heavy egg lays of both fall armyworm and corn earworm this year, often resulting in several larvae per ear. Corn earworm is a cannibal and might be able to eat other larvae in the ear tip and grow to considerable size without consuming all that much kernel material that contains Bt. Larger larvae can withstand higher doses of Bt, so it is possible that some of the large larvae being found actually ate a mixture of Bt kernels and other larvae in the ear. So I have no real worries about resistance to single toxin Bt corn hybrids.

That being said, remember that when we built the resistance management plans for YieldGard and Herculex, we modeled the refuge strategy to prevent resistance for 20 years. (Yes, I was part of that process.) YieldGard has now been on the market for 14 years, and Herculex almost that. So it is possible that tolerance might be on the uptick, especially in areas where the refuge strategy has not been followed. I am NOT SAYING THAT WE HAVE ANY TOLERANCE. There is no scientific evidence that we do. I'm just saying it is not outside the realm of possibility. Your seed company representative will come out and collect insects to send for genetic testing if the damage seems to be worse than would be expected. This collection and screening procedure is a requirement placed on the companies that sell Bt corn, and the seed companies take possible resistance issues very seriously.

At this point I should also add that within the continental U.S. we don't have any known increase in tolerance to Herculex corn in fall armyworm. However, it has been found in Puerto Rico, and scientists are looking at the genetic composition of fall armyworm in Florida to see if the genes might have arrived with Puerto Rican moths.

In summary; I don't think there is any tolerance or resistance to YieldGard or Herculex corn in our corn earworm or fall armyworm populations. But if you think there is a control problem in your field, by all means call your seed dealer and have the situation investigated. Feel free to call me, Pat Porter, as well at (806) 746-6101. RPP



Fall armyworm damage to non-Bt corn in my next-generation Pioneer Bt corn trial

Sorghum Insects

As mentioned [last week](#), sorghum that is still blooming should be scouted for sorghum midge. We have some late blooming sorghum on the research station and there are clouds of midges trying to lay eggs on it. Midge is widespread and not just limited to Lubbock County. Headworms are either hard to find or easy to find depending on where you go. They have dropped somewhat in Lubbock County, but Monti Vandiver, Extension IPM Agent in Parmer and Bailey counties reported a field that had more than two headworms per head; way, way over threshold. Headworms is a generic term for fall armyworm and corn earworm and, if you read David's cotton section (and who doesn't), then you know about the increasing numbers of these caterpillars. RPP

Wheat Agronomy

Wheat Variety Recommendations for Grain

Dr. Brent Bean, Extension agronomist, Amarillo, compiles a running summary of wheat variety recommendations for the Texas High Plains on an ongoing basis. You may contact your county Extension office for a copy or visit the [wheat page](#) on the Lubbock web server.

For any wheat seed, we recognize the potential advantages of certified seed. Texas Dept. of Ag. has checked the seed lot for weed seed, germ, etc. Any wheat seed, regardless of origin, should have a germ of at least 85% and a test weight of at least 58 lbs./bushel.

For 2010, Dr. Bean notes the following selections for wheat variety recommendations (in no particular order):

- Full Irrigation: TAM 111, Hatcher, Endurance, Duster, TAM 304
- Limited Irrigation: TAM 111, TAM 112, Hatcher, Endurance, Duster, TAM 304

- Dryland: TAM 111, TAM 112, Hatcher, Endurance, Duster (added in 2010)

Varieties recommended by Brent Bean here are those that have consistently performed well over at least a three-year period. Those varieties that perform well under full irrigation also tend to be the same varieties that yield well under dryland. In our environment, even those varieties grown under full irrigation are going to be subject to heat stress and likely some periods of drought. Over the last four years, *Hatcher* and *TAM 111* have consistently been top varieties in all of our trials. These varieties should be considered for all environments in the Texas High Plains. Greenbug tolerant *TAM 112* is a very good dryland or limited irrigated variety. Under full irrigation some lodging can occur, and thus it does not make the list for full irrigation. *Endurance* and *Duster* are very seldom the top variety in any given trial, yet these Oklahoma State varieties consistently are in the top 25% of most trials.

How have these recommendations changed from since 2008?

Overall the wheat variety 'picks list' does not usually change much from one year to the next as we usually need three years of performance testing before we would recommend a variety. This year, for 2010 picks however, there were some changes as compared to 2008 & 2009 picks.

Deletions from the 2008 & 2009 recommendations:

- Fuller (KSU) was once recommended in the Texas High Plains for all planting conditions, but recent performance has lagged, and it has been removed as a pick for full & limited irrigation and dryland.
- Full irrigation: Dumas has been hard to beat under full irrigation for many years, but the above newer varieties have caught Dumas, and though it is still a good variety it has been nudged off

our picks list for 2010. Fuller has also been deleted.

Dryland: Trio Research T81 has been deleted.

Additional Wheat Grain Summaries Forthcoming

Extension is updating a five-year summary of grain yields for the southwest South Plains as well as newly revised Texas High Plains 3, 4, & 5 year summary for irrigated and dryland wheat in the Texas High Plains. These should be finalized in early September. Watch for them on <http://lubbock.tamu.edu/wheat>

Weed Control Recommendations in Wheat

The most recent guide (2008) that lists the many pre-plant and post-emerge herbicides for wheat, along with key details, is posted at <http://lubbock.tamu.edu/wheat> The guide is about 19 pages long. CT

FOCUS on South Plains Agriculture

Fair use policy

We do not mind if others use the information in FOCUS for their own purposes, but please give the appropriate credit to FOCUS on South Plains Agriculture when you do. Extension personnel that want to reprint parts of this newsletter may do so and should contact us for a word processor version. Images may or may not be copyrighted by the photographer or an institution. They may not be reproduced without permission. Call 806-746-6101 to determine the copyright status of images.

Editors

David Kerns and Patrick Porter, Co-editors

[SEND US A COMMENT BY E-MAIL](#)

Contributing Authors

David Kerns (DLK), Extension Entomologist
Patrick Porter (RPP), Extension Entomologist
Calvin Trostle (CT), Extension Agronomist

Useful Web Links

[Applied Research Reports \(Goldmine\)](#)
[Texas High Plains ET Network](#)
[Irrigation at Lubbock](#)
[IPM How-To Videos](#)
[Lubbock Center Homepage](#)
[Texas Agricultural Experiment Station Home](#)
[Texas Cooperative Extension Home](#)
[Plains Cotton Growers](#)

County IPM Newsletters

[Castro/Lamb](#)
[Dawson/Lynn](#)
[Crosby/Floyd](#)
[Gaines](#)
[Hale/Swisher](#)
[Hockley/Cochran](#)
[Lubbock](#)
[Moore](#)
[Nolan/Scurry/Mitchell/Jones](#)
[Parmer/Bailey](#)
[Terry/Yoakum](#)

